

## CLAIM AMENDMENTS

1-35. (Cancelled)

1           36. (New) An automated manufacture process test system resident upon a disk drive that  
2 performs a manufacture test process on the disk drive once the disk drive is installed and  
3 operating within a computer system, the test system comprising:

4           a monitor that determines whether any user command from the computer system is  
5 pending or the computer system is idle;

6           a processing module that performs the manufacture test process on a disk of the disk  
7 drive, wherein the manufacture test process is performed on a portion of the disk for the first time  
8 and in a particular manner depending on whether the computer system has issued the user  
9 command or the computer system is idle; and

10          a controller that tracks performance of the manufacture test process such that counters  
11 stored in a memory of the disk drive indicate which portion of the disk has been processed by the  
12 manufacture test process.

1           37. (New) The system of Claim 36 wherein manufacture test process includes at least one  
2 of flaw mapping, embedded runout compensation (ERC) and final drive verification.

1           38. (New) The system of Claim 37 wherein the processing module performs the flaw  
2 mapping such that a first flaw mapping test is performed when a user command for operating the  
3 disk drive is pending and a second flaw mapping test is performed when the computer is system  
4 is idle.

1           39. (New) The system of Claim 38 wherein the first flaw mapping test is performed by  
2 identifying logical block addresses (LBAs) on the disk to which information is to be written,  
3 determining whether the identified LBAs have been processed, and if the identified LBAs have  
4 not been processed, performing a write/verify on each of the LBAs.

1           40. (New) The system of Claim 38 wherein the second flaw mapping test is performed by  
2     accessing the memory and identifying an increment of logical block addresses (LBAs) which are  
3     unprocessed, performing a write/verify on each of the LBAs in the increment, and updating the  
4     memory to indicate which of the LBAs have been processed.

1           41. (New) The system of Claim 37 wherein the processing module performs the ERC  
2     when the computer system is idle by accessing the memory to determine which cylinder was last  
3     processed, performing the ERC on the next cylinder, and updating the memory to indicate  
4     completion of the ERC on the next cylinder.

1           42. (New) The system of Claim 37 wherein the processing module performs the final  
2     drive verification such that a first final drive verification test is performed when a user command  
3     for operating the disk drive is pending and a second final drive verification test is performed  
4     when the computer system is idle.

1           43. (New) The system of Claim 42 wherein the first final drive verification test is  
2     performed by identifying logical block addresses (LBAs) on the disk to which information is to  
3     be written, determining whether the identified LBAs have been processed, and if the identified  
4     LBAs have not been processed, performing a write/verify on each of the LBAs.

1           44. (New) The system of Claim 42 wherein the second final drive verification test is  
2     performed by accessing the memory and identifying an increment of logical block addresses  
3     (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in the increment,  
4     and updating the memory to indicate which of the LBAs have been processed.

1           45. (New) The system of Claim 36 wherein a predetermined portion of the disk is  
2     processed by the manufacture test process before installation of the disk drive in the computer  
3     system, and the portion of the disk drive which has been processed is identified by the controller.

1           46. (New) The system of Claim 45 wherein any major flaw in the disk is detected before  
2 the disk drive is installed in the computer system.

1           47. (New) The system of Claim 45 wherein the disk includes concentric tracks and the  
2 predetermined portion includes a predetermined percentage of the tracks as well as every Nth of  
3 the tracks.

1           48. (New) A method of performing a manufacture test process for a disk drive,  
2 comprising:  
3           installing the disk drive in a computer system and employing the disk drive for operations  
4 of the computer system after the disk drive leaves a factory; then  
5           detecting a predetermined condition in the computer system;  
6           performing a manufacture test process on a particular area of a disk of the disk drive for  
7 the first time in response to the detected condition, wherein the manufacture test process is  
8 performed in accordance with information stored in a memory of the disk drive which indicates  
9 where the manufacture test process shall begin and end, and the manufacture test process corrects  
10 errors detected on the disk; and  
11           updating the memory to indicate upon which portions of the disk the manufacture test  
12 process has been performed.

1           49. (New) The method of Claim 48 wherein the manufacture test process includes at least  
2 one of flaw mapping, embedded runout compensation (ERC) and final drive verification.

1           50. (New) The method of Claim 49 wherein the detected condition includes a user  
2 command pending from the computer system and the computer system is idle.

1           51. (New) The method of Claim 50 wherein the flaw mapping includes:  
2           determining the detected condition for the computer system;  
3           if the user command is pending, before performing the user command:

4 identifying logical block addresses (LBAs) employed as part of performing the  
5 user command;  
6 accessing the memory to determine if the identified logical block addresses have  
7 been previously processed;  
8 if any of the LBAs are unprocessed, performing a write/verify on each of the  
9 unprocessed LBAs and reassigning any of the unprocessed LBAs which fail the write/verify; and  
10 updating the memory to indicate which of the unprocessed LBAs have been  
11 processed;  
12 if the computer system is idle:  
13 accessing the memory and identifying a next increment of LBAs to process;  
14 performing the write/verify on each of the LBAs in the increment;  
15 reassigning the LBAs in the increment which fail the write/verify; and  
16 updating the memory to indicate that the LBAs in the increment have been  
17 processed.

1 52. (New) The method of Claim 49 wherein the ERC includes:  
2 determining the detected condition for the computer system; and  
3 if the computer system is idle:  
4 accessing the memory and identifying a next cylinder to process;  
5 performing the ERC on the next cylinder, and storing in the memory any  
6 generated error values; and  
7 updating the memory to indicate that the next cylinder has been processed.

1 53. (New) The method of Claim 49 wherein the final drive verification includes:  
2 determining the detected condition for the computer system;  
3 if the user command is pending, before performing the user command:  
4 identifying logical block addresses (LBAs) employed as part of performing the  
5 user command;  
6 accessing the memory to determine if the identified logical block addresses have  
7 been previously processed;

8                   if any of the LBAs are unprocessed, performing a write/verify on each of the  
9 unprocessed LBAs and reassigning any of the unprocessed LBAs which fail the write/verify; and  
10                  updating the memory to indicate which of the unprocessed LBAs have been  
11 processed;  
12                  if the computer system is idle:  
13                    accessing the memory and identifying a next increment of LBAs to process;  
14                    performing the read/verify on each of the LBAs in the increment;  
15                    reassigning the LBAs in the increment which fail the read/verify; and  
16                    updating the memory to indicate that the LBAs in the increment have been  
17 processed.

1                  54. (New) The method of Claim 48 including performing the manufacture test process  
2 prior to installation of the disk drive in the computer system to identify a major flaw on the disk.

1                  55. (New) The method of Claim 48 wherein a program for performing the manufacturing  
2 test process is placed in the memory before installing the disk drive in the computer system.

1                  56. (New) The method of Claim 54 wherein the disk includes concentric tracks and  
2 performing the manufacture test process prior to installation of the disk drive in the computer  
3 system includes testing a predetermined percentage of the tracks as well as every Nth track of the  
4 tracks.

1                  57. (New) A disk drive, comprising:  
2                    a disk with spaced tracks for storing information;  
3                    a head that reads and writes information to and from the disk;  
4                    a memory;  
5                    a processing module stored in the memory that performs a manufacture test process on  
6 the disk while the disk drive is installed and operating in a computer system; and

7 a controller that executes the manufacture test process on a portion of the disk for the first  
8 time in response to a predetermined condition of the computer system configured to control  
9 operation of the head when the computer system is idle.

1 58. (New) The disk drive of Claim 57 wherein the memory is a read only memory  
2 (ROM).

1 59. (New) The disk drive of Claim 57 wherein the memory is a processed area of the disk.

1 60. (New) The disk drive of Claim 57 wherein the manufacture test process includes at  
2 least one of flaw mapping, embedded runout compensation (ERC) and final drive verification.

1 61. (New) The disk drive of Claim 60 wherein the processing module performs the flaw  
2 mapping such that a first flaw mapping test is performed when a user command for operating the  
3 disk drive is pending and a second flaw mapping test is performed when the computer system is  
4 idle.

1 62. (New) The disk drive of Claim 61 wherein the first flaw mapping test is performed by  
2 identifying logical block addresses (LBAs) on the disk, determining whether the identified LBAs  
3 have been processed, and if the identified LBAs have not been processed, performing a  
4 write/verify on each of the LBAs.

1 63. (New) The disk drive of Claim 61 wherein the second flaw mapping test is performed  
2 by accessing the memory and identifying an increment of logical block addresses (LBAs) which  
3 are unprocessed, performing a write/verify on each of the LBAs in the increment, and updating  
4 the memory to indicate which of the LBAs have been processed.

1 64. (New) The disk drive of Claim 60 wherein the processing module performs the ERC  
2 when the computer system is idle by accessing the memory to determine which cylinder was last

3 processed, performing the ERC on the next cylinder, and updating the memory to indicate  
4 completion of the ERC on the next cylinder.

1 65. (New) The disk drive of Claim 60 wherein the processing module performs the final  
2 drive verification such that a first final drive verification test is performed when a user command  
3 for operating the disk drive is pending and a second final drive verification test when the  
4 computer system is idle.

1 66. (New) The disk drive of Claim 65 wherein the first final drive verification test is  
2 performed by identifying logical block addresses (LBAs) on the disk to which information is to  
3 be written, determining whether the identified LBAs have been processed, and if the identified  
4 LBAs have not been processed, performing a write/verify on each of the LBAs.

1 67. (New) The disk drive of Claim 65 wherein the second final drive verification test is  
2 performed by accessing memory and identifying an increment of logical block addresses (LBAs)  
3 which are unprocessed, performing a write/verify on each of the LBAs in the increment, and  
4 updating the memory to indicate which of the LBAs have been processed.

1 68. (New) The disk drive of Claim 48 wherein the disk drive performs the manufacture  
2 test process on a predetermined portion of the disk before the disk drive is installed in the  
3 computer system.

1 69. (New) The disk drive of Claim 68 wherein the disk drive detects any major flaws in  
2 the disk before the disk drive is installed in the computer system.

1 70. (New) The disk drive of Claim 68 wherein the predetermined portion includes a  
2 predetermined percentage of the tracks as well as every Nth of the tracks.

1 71. (New) A disk drive, comprising:  
2 a disk that includes spaced tracks for storing information;

3 a head that reads and writes information to and from the disk; and  
4 a controller that executes a manufacture test process stored in the disk drive (1) on a first  
5 portion of the disk and not a second portion of the disk while the disk drive is manufactured at a  
6 factory and before the disk drive is installed and operating in a computer system, and (2) on the  
7 second portion of the disk for the first time after the disk drive is manufactured at the factory and  
8 while the disk drive is installed and operating in the computer system.

1 72. (New) The disk drive of Claim 71 wherein the manufacture test process includes at  
2 least one of flaw mapping, embedded runout compensation (ERC) and final drive verification.

1 73. (New) The disk drive of Claim 71 wherein the manufacture test process includes the  
2 flaw mapping.

1 74. (New) The disk drive of Claim 73 wherein the controller executes the flaw mapping  
2 on the second portion of the disk such that a first flaw mapping test is performed when a user  
3 command for operating the disk drive is pending and a second flaw mapping test is performed  
4 when the computer system is idle.

1 75. (New) The disk drive of Claim 74 wherein the first flaw mapping test is performed by  
2 identifying logical block addresses (LBAs) on the disk, determining whether the identified LBAs  
3 have been processed, and if the identified LBAs have not been processed, performing a  
4 write/verify on each of the LBAs.

1 76. (New) The disk drive of Claim 74 wherein the second flaw mapping test is performed  
2 by identifying an increment of logical block addresses (LBAs) which are unprocessed,  
3 performing a write/verify on each of the LBAs in the increment, and updating which of the LBAs  
4 have been processed.

1 77. (New) The disk drive of Claim 74 wherein:



2 the first flaw mapping test is performed by identifying logical block addresses (LBAs) on  
3 the disk, determining whether the identified LBAs have been processed, and if the identified  
4 LBAs have not been processed, performing a write/verify on each of the LBAs; and

5 the second flaw mapping test is performed by identifying an increment of logical block  
6 addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in the  
7 increment, and indicating which of the LBAs have been processed.

1 78. (New) The disk drive of Claim 71 wherein the manufacture test process includes the  
2 ERC.

1 79. (New) The disk drive of Claim 78 wherein the controller executes the ERC by  
2 determining which cylinder was last processed, performing the ERC on the next cylinder, and  
3 indicating completion of the ERC on the next cylinder.

1 80. (New) The disk drive of Claim 71 wherein the manufacture test process includes the  
2 final drive verification.

1 81. (New) The disk drive of Claim 80 wherein the controller executes the final drive  
2 verification such that a first final drive verification test is performed when a user command for  
3 operating the disk drive is pending and a second final drive verification test when the computer  
4 system is idle.

1 82. (New) The disk drive of Claim 81 wherein the first final drive verification test is  
2 performed by identifying logical block addresses (LBAs) on the disk to which information is to  
3 be written, determining whether the identified LBAs have been processed, and if the identified  
4 LBAs have not been processed, performing a write/verify on each of the LBAs.

1 83. (New) The disk drive of Claim 81 wherein the second final drive verification test is  
2 performed by identifying an increment of logical block addresses (LBAs) which are unprocessed,

3 performing a write/verify on each of the LBAs in the increment, and indicating which of the  
4 LBAs have been processed.

1 84. (New) The disk drive of Claim 81 wherein:  
2 the first final drive verification test is performed by identifying logical block addresses  
3 (LBAs) on the disk to which information is to be written, determining whether the identified  
4 LBAs have been processed, and if the identified LBAs have not been processed, performing a  
5 write/verify on each of the LBAs; and  
6 the second final drive verification test is performed by identifying an increment of logical  
7 block addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in  
8 the increment, and indicating which of the LBAs have been processed.

1 85. (New) The disk drive of Claim 71 wherein the controller executes the manufacture  
2 test process on the first portion of the disk such that any major flaws in the disk are detected.

1 86. (New) The disk drive of Claim 71 wherein the first portion of the disk includes a  
2 predetermined percentage of the tracks as well as every Nth of the tracks.

1 87. (New) The disk drive of Claim 71 wherein the manufacture test process is stored in a  
2 random access memory (RAM) in the disk drive.

1 88. (New) The disk drive of Claim 71 wherein the manufacture test process is stored in a  
2 read only memory (ROM) in the disk drive.

1 89. (New) The disk drive of Claim 71 wherein the manufacture test process is stored in  
2 the first portion of the disk.

1 90. (New) The disk drive of Claim 71 wherein the first portion of the disk is smaller than  
2 the second portion of the disk.

1           91. (New) A disk drive, comprising:  
2           a disk with spaced tracks for storing information;  
3           a head that reads and writes information to and from the disk; and  
4           a controller that executes a manufacture test process stored in the disk drive (1) on a first  
5           portion of the disk and not a second portion of the disk while the disk drive is manufactured at a  
6           factory and before the disk drive is delivered from the factory and installed and operating in a  
7           computer system, and (2) on the second portion of the disk for the first time after the disk drive is  
8           manufactured at and delivered from the factory and while the disk drive is installed and operating  
9           in the computer system, thereby reducing manufacturing time for the disk drive at the factory.

1           92. (New) The disk drive of Claim 91 wherein the manufacture test process includes at  
2           least one of flaw mapping, embedded runout compensation (ERC) and final drive verification.

1           93. (New) The disk drive of Claim 91 wherein the manufacture test process includes the  
2           flaw mapping.

1           94. (New) The disk drive of Claim 93 wherein the controller executes the flaw mapping  
2           on the second portion of the disk such that a first flaw mapping test is performed when a user  
3           command for operating the disk drive is pending and a second flaw mapping test is performed  
4           when the computer system is idle.

1           95. (New) The disk drive of Claim 94 wherein the first flaw mapping test is performed by  
2           identifying logical block addresses (LBAs) on the disk, determining whether the identified LBAs  
3           have been processed, and if the identified LBAs have not been processed, performing a  
4           write/verify on each of the LBAs.

1           96. (New) The disk drive of Claim 94 wherein the second flaw mapping test is performed  
2           by identifying an increment of logical block addresses (LBAs) which are unprocessed,  
3           performing a write/verify on each of the LBAs in the increment, and updating which of the LBAs  
4           have been processed.

1           97. (New) The disk drive of Claim 94 wherein:  
2           the first flaw mapping test is performed by identifying logical block addresses (LBAs) on  
3 the disk, determining whether the identified LBAs have been processed, and if the identified  
4 LBAs have not been processed, performing a write/verify on each of the LBAs; and  
5           the second flaw mapping test is performed by identifying an increment of logical block  
6 addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in the  
7 increment, and indicating which of the LBAs have been processed.

1           98. (New) The disk drive of Claim 91 wherein the manufacture test process includes the  
2 ERC.

1           99. (New) The disk drive of Claim 98 wherein the controller executes the ERC by  
2 determining which cylinder was last processed, performing the ERC on the next cylinder, and  
3 indicating completion of the ERC on the next cylinder.

1           100. (New) The disk drive of Claim 91 wherein the manufacture test process includes the  
2 final drive verification.

1           101. (New) The disk drive of Claim 100 wherein the controller executes the final drive  
2 verification such that a first final drive verification test is performed when a user command for  
3 operating the disk drive is pending and a second final drive verification test when the computer  
4 system is idle.

1           102. (New) The disk drive of Claim 101 wherein the first final drive verification test is  
2 performed by identifying logical block addresses (LBAs) on the disk to which information is to  
3 be written, determining whether the identified LBAs have been processed, and if the identified  
4 LBAs have not been processed, performing a write/verify on each of the LBAs.

1           103. (New) The disk drive of Claim 101 wherein the second final drive verification test is  
2 performed by identifying an increment of logical block addresses (LBAs) which are unprocessed,  
3 performing a write/verify on each of the LBAs in the increment, and indicating which of the  
4 LBAs have been processed.

1           104. (New) The disk drive of Claim 101 wherein:  
2           the first final drive verification test is performed by identifying logical block addresses  
3 (LBAs) on the disk to which information is to be written, determining whether the identified  
4 LBAs have been processed, and if the identified LBAs have not been processed, performing a  
5 write/verify on each of the LBAs; and  
6           the second final drive verification test is performed by identifying an increment of logical  
7 block addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in  
8 the increment, and indicating which of the LBAs have been processed.

1           105. (New) The disk drive of Claim 91 wherein the controller executes the manufacture  
2 test process on the first portion of the disk such that any major flaws in the disk are detected.

1           106. (New) The disk drive of Claim 91 wherein the first portion of the disk includes a  
2 predetermined percentage of the tracks as well as every Nth of the tracks.

1           107. (New) The disk drive of Claim 91 wherein the manufacture test process is stored in a  
2 random access memory (RAM) in the disk drive.

1           108. (New) The disk drive of Claim 91 wherein the manufacture test process is stored in a  
2 read only memory (ROM) in the disk drive.

1           109. (New) The disk drive of Claim 91 wherein the manufacture test process is stored in  
2 the first portion of the disk.

1           110. (New) The disk drive of Claim 91 wherein the first portion of the disk is smaller  
2 than the second portion of the disk.

1           111. (New) A disk drive, comprising:  
2 a disk with spaced tracks for storing information;  
3 a head that reads and writes information to and from the disk;  
4 a controller that executes a manufacture test process stored in the disk drive (1) on a first  
5 portion of the disk and not a second portion of the disk using the head while the disk drive is  
6 manufactured at a factory and before the disk drive is installed and operating in a computer  
7 system, and (2) on the second portion of the disk for the first time using the head after the disk  
8 drive is manufactured at the factory and while the disk drive is installed and operating in the  
9 computer system.

1           112. (New) The disk drive of Claim 111 wherein the manufacture test process includes at  
2 least one of flaw mapping, embedded runout compensation (ERC) and final drive verification.

1           113. (New) The disk drive of Claim 111 wherein the manufacture test process includes  
2 the flaw mapping.

1           114. (New) The disk drive of Claim 113 wherein the controller executes the flaw  
2 mapping on the second portion of the disk such that a first flaw mapping test is performed when  
3 a user command for operating the disk drive is pending and a second flaw mapping test is  
4 performed when the computer system is idle.

1           115. (New) The disk drive of Claim 114 wherein the first flaw mapping test is performed  
2 by identifying logical block addresses (LBAs) on the disk, determining whether the identified  
3 LBAs have been processed, and if the identified LBAs have not been processed, performing a  
4 write/verify on each of the LBAs.

1           116. (New) The disk drive of Claim 114 wherein the second flaw mapping test is  
2 performed by identifying an increment of logical block addresses (LBAs) which are unprocessed,  
3 performing a write/verify on each of the LBAs in the increment, and updating which of the LBAs  
4 have been processed.

1           117. (New) The disk drive of Claim 114 wherein:  
2           the first flaw mapping test is performed by identifying logical block addresses (LBAs) on  
3 the disk, determining whether the identified LBAs have been processed, and if the identified  
4 LBAs have not been processed, performing a write/verify on each of the LBAs; and  
5           the second flaw mapping test is performed by identifying an increment of logical block  
6 addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in the  
7 increment, and indicating which of the LBAs have been processed.

1           118. (New) The disk drive of Claim 111 wherein the manufacture test process includes  
2 the ERC.

1           119. (New) The disk drive of Claim 118 wherein the controller executes the ERC by  
2 determining which cylinder was last processed, performing the ERC on the next cylinder, and  
3 indicating completion of the ERC on the next cylinder.

1           120. (New) The disk drive of Claim 111 wherein the manufacture test process includes  
2 the final drive verification.

1           121. (New) The disk drive of Claim 120 wherein the controller executes the final drive  
2 verification such that a first final drive verification test is performed when a user command for  
3 operating the disk drive is pending and a second final drive verification test when the computer  
4 system is idle.

1           122. (New) The disk drive of Claim 121 wherein the first final drive verification test is  
2 performed by identifying logical block addresses (LBAs) on the disk to which information is to

3 be written, determining whether the identified LBAs have been processed, and if the identified  
4 LBAs have not been processed, performing a write/verify on each of the LBAs.

1 123. (New) The disk drive of Claim 121 wherein the second final drive verification test is  
2 performed by identifying an increment of logical block addresses (LBAs) which are unprocessed,  
3 performing a write/verify on each of the LBAs in the increment, and indicating which of the  
4 LBAs have been processed.

1 124. (New) The disk drive of Claim 121 wherein:  
2 the first final drive verification test is performed by identifying logical block addresses  
3 (LBAs) on the disk to which information is to be written, determining whether the identified  
4 LBAs have been processed, and if the identified LBAs have not been processed, performing a  
5 write/verify on each of the LBAs; and  
6 the second final drive verification test is performed by identifying an increment of logical  
7 block addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in  
8 the increment, and indicating which of the LBAs have been processed.

1 125. (New) The disk drive of Claim 111 wherein the controller executes the manufacture  
2 test process on the first portion of the disk such that any major flaws in the disk are detected.

1 126. (New) The disk drive of Claim 111 wherein the first portion of the disk includes a  
2 predetermined percentage of the tracks as well as every Nth of the tracks.

1 127. (New) The disk drive of Claim 111 wherein the manufacture test process is stored in  
2 a random access memory (RAM) in the disk drive.

1 128. (New) The disk drive of Claim 111 wherein the manufacture test process is stored in  
2 a read only memory (ROM) in the disk drive.



1           129. (New) The disk drive of Claim 111 wherein the manufacture test process is stored in  
2 the first portion of the disk.

1           130. (New) The disk drive of Claim 111 wherein the first portion of the disk is smaller  
2 than the second portion of the disk.

1           131. (New) A disk drive, comprising:  
2 a disk that includes spaced tracks for storing information;  
3 a head that reads and writes information to and from the disk; and  
4 a controller that executes a manufacture test process stored in the disk drive (1) on a first  
5 portion of the disk and not a second portion of the disk while the disk drive is manufactured at a  
6 factory and before the disk drive is installed and operating in a computer system, and (2) on the  
7 second portion of the disk for the first time in response to automatic initiation by the disk drive  
8 after the disk drive is manufactured at the factory and while the disk drive is installed and  
9 operating in the computer system.

1           132. (New) The disk drive of Claim 131 wherein the manufacture test process includes at  
2 least one of flaw mapping, embedded runout compensation (ERC) and final drive verification.

1           133. (New) The disk drive of Claim 131 wherein the manufacture test process includes  
2 the flaw mapping.

1           134. (New) The disk drive of Claim 133 wherein the controller executes the flaw  
2 mapping on the second portion of the disk such that a first flaw mapping test is performed when  
3 a user command for operating the disk drive is pending and a second flaw mapping test is  
4 performed when the computer system is idle.

1           135. (New) The disk drive of Claim 134 wherein the first flaw mapping test is performed  
2 by identifying logical block addresses (LBAs) on the disk, determining whether the identified

3 LBAs have been processed, and if the identified LBAs have not been processed, performing a  
4 write/verify on each of the LBAs.

1 136. (New) The disk drive of Claim 134 wherein the second flaw mapping test is  
2 performed by identifying an increment of logical block addresses (LBAs) which are unprocessed,  
3 performing a write/verify on each of the LBAs in the increment, and updating which of the LBAs  
4 have been processed.

1 137. (New) The disk drive of Claim 134 wherein:  
2 the first flaw mapping test is performed by identifying logical block addresses (LBAs) on  
3 the disk, determining whether the identified LBAs have been processed, and if the identified  
4 LBAs have not been processed, performing a write/verify on each of the LBAs; and  
5 the second flaw mapping test is performed by identifying an increment of logical block  
6 addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in the  
7 increment, and indicating which of the LBAs have been processed.

1 138. (New) The disk drive of Claim 131 wherein the manufacture test process includes  
2 the ERC.

1 139. (New) The disk drive of Claim 138 wherein the controller executes the ERC by  
2 determining which cylinder was last processed, performing the ERC on the next cylinder, and  
3 indicating completion of the ERC on the next cylinder.

1 140. (New) The disk drive of Claim 131 wherein the manufacture test process includes  
2 the final drive verification.

1 141. (New) The disk drive of Claim 140 wherein the controller executes the final drive  
2 verification such that a first final drive verification test is performed when a user command for  
3 operating the disk drive is pending and a second final drive verification test when the computer  
4 system is idle.

1           142. (New) The disk drive of Claim 141 wherein the first final drive verification test is  
2 performed by identifying logical block addresses (LBAs) on the disk to which information is to  
3 be written, determining whether the identified LBAs have been processed, and if the identified  
4 LBAs have not been processed, performing a write/verify on each of the LBAs.

1           143. (New) The disk drive of Claim 141 wherein the second final drive verification test is  
2 performed by identifying an increment of logical block addresses (LBAs) which are unprocessed,  
3 performing a write/verify on each of the LBAs in the increment, and indicating which of the  
4 LBAs have been processed.

1           144. (New) The disk drive of Claim 141 wherein:  
2           the first final drive verification test is performed by identifying logical block addresses  
3 (LBAs) on the disk to which information is to be written, determining whether the identified  
4 LBAs have been processed, and if the identified LBAs have not been processed, performing a  
5 write/verify on each of the LBAs; and  
6           the second final drive verification test is performed by identifying an increment of logical  
7 block addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in  
8 the increment, and indicating which of the LBAs have been processed.

1           145. (New) The disk drive of Claim 131 wherein the controller executes the manufacture  
2 test process on the first portion of the disk such that any major flaws in the disk are detected.

1           146. (New) The disk drive of Claim 131 wherein the first portion of the disk includes a  
2 predetermined percentage of the tracks as well as every Nth of the tracks.

1           147. (New) The disk drive of Claim 131 wherein the manufacture test process is stored in  
2 a random access memory (RAM) in the disk drive.

1           148. (New) The disk drive of Claim 131 wherein the manufacture test process is stored in  
2   a read only memory (ROM) in the disk drive.

1           149. (New) The disk drive of Claim 131 wherein the manufacture test process is stored in  
2   the first portion of the disk.

1           150. (New) The disk drive of Claim 131 wherein the first portion of the disk is smaller  
2   than the second portion of the disk.

1           151. (New) A disk drive, comprising:  
2       a disk with spaced tracks for storing information;  
3       a head that reads and writes information to and from the disk; and  
4       a controller that executes a manufacture test process stored in the disk drive (1) on a first  
5   portion of the disk and not a second portion of the disk while the disk drive is manufactured at a  
6   factory and before the disk drive is delivered from the factory and installed and operating in a  
7   computer system, and (2) on the second portion of the disk for the first time in response to  
8   automatic initiation by the disk drive after the disk drive is manufactured at and delivered from  
9   the factory and while the disk drive is installed and operating in the computer system, thereby  
10   reducing manufacturing time for the disk drive at the factory.

1           152. (New) The disk drive of Claim 151 wherein the manufacture test process includes at  
2   least one of flaw mapping, embedded runout compensation (ERC) and final drive verification.

1           153. (New) The disk drive of Claim 151 wherein the manufacture test process includes  
2   the flaw mapping.

1           154. (New) The disk drive of Claim 153 wherein the controller executes the flaw  
2   mapping on the second portion of the disk such that a first flaw mapping test is performed when  
3   a user command for operating the disk drive is pending and a second flaw mapping test is  
4   performed when the computer system is idle.

1           155. (New) The disk drive of Claim 154 wherein the first flaw mapping test is performed  
2 by identifying logical block addresses (LBAs) on the disk, determining whether the identified  
3 LBAs have been processed, and if the identified LBAs have not been processed, performing a  
4 write/verify on each of the LBAs.

1           156. (New) The disk drive of Claim 154 wherein the second flaw mapping test is  
2 performed by identifying an increment of logical block addresses (LBAs) which are unprocessed,  
3 performing a write/verify on each of the LBAs in the increment, and updating which of the LBAs  
4 have been processed.

1           157. (New) The disk drive of Claim 154 wherein:  
2           the first flaw mapping test is performed by identifying logical block addresses (LBAs) on  
3 the disk, determining whether the identified LBAs have been processed, and if the identified  
4 LBAs have not been processed, performing a write/verify on each of the LBAs; and  
5           the second flaw mapping test is performed by identifying an increment of logical block  
6 addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in the  
7 increment, and indicating which of the LBAs have been processed.

1           158. (New) The disk drive of Claim 151 wherein the manufacture test process includes  
2 the ERC.

1           159. (New) The disk drive of Claim 158 wherein the controller executes the ERC by  
2 determining which cylinder was last processed, performing the ERC on the next cylinder, and  
3 indicating completion of the ERC on the next cylinder.

1           160. (New) The disk drive of Claim 151 wherein the manufacture test process includes  
2 the final drive verification.

1           161. (New) The disk drive of Claim 160 wherein the controller executes the final drive  
2 verification such that a first final drive verification test is performed when a user command for  
3 operating the disk drive is pending and a second final drive verification test when the computer  
4 system is idle.

1           162. (New) The disk drive of Claim 161 wherein the first final drive verification test is  
2 performed by identifying logical block addresses (LBAs) on the disk to which information is to  
3 be written, determining whether the identified LBAs have been processed, and if the identified  
4 LBAs have not been processed, performing a write/verify on each of the LBAs.

1           163. (New) The disk drive of Claim 161 wherein the second final drive verification test is  
2 performed by identifying an increment of logical block addresses (LBAs) which are unprocessed,  
3 performing a write/verify on each of the LBAs in the increment, and indicating which of the  
4 LBAs have been processed.

1           164. (New) The disk drive of Claim 161 wherein:  
2           the first final drive verification test is performed by identifying logical block addresses  
3 (LBAs) on the disk to which information is to be written, determining whether the identified  
4 LBAs have been processed, and if the identified LBAs have not been processed, performing a  
5 write/verify on each of the LBAs; and  
6           the second final drive verification test is performed by identifying an increment of logical  
7 block addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in  
8 the increment, and indicating which of the LBAs have been processed.

1           165. (New) The disk drive of Claim 151 wherein the controller executes the manufacture  
2 test process on the first portion of the disk such that any major flaws in the disk are detected.

1           166. (New) The disk drive of Claim 151 wherein the first portion of the disk includes a  
2 predetermined percentage of the tracks as well as every Nth of the tracks.

1           167. (New) The disk drive of Claim 151 wherein the manufacture test process is stored in  
2 a random access memory (RAM) in the disk drive.

1           168. (New) The disk drive of Claim 151 wherein the manufacture test process is stored in  
2 a read only memory (ROM) in the disk drive.

1           169. (New) The disk drive of Claim 151 wherein the manufacture test process is stored in  
2 the first portion of the disk.

1           170. (New) The disk drive of Claim 151 wherein the first portion of the disk is smaller  
2 than the second portion of the disk.

1           171. (New) A disk drive, comprising:  
2 a disk with spaced tracks for storing information;  
3 a head that reads and writes information to and from the disk;  
4 a controller that executes a manufacture test process stored in the disk drive (1) on a first  
5 portion of the disk and not a second portion of the disk using the head while the disk drive is  
6 manufactured at a factory and before the disk drive is installed and operating in a computer  
7 system, and (2) on the second portion of the disk for the first time using the head in response to  
8 automatic initiation by the disk drive after the disk drive is manufactured at the factory and while  
9 the disk drive is installed and operating in the computer system.

1           172. (New) The disk drive of Claim 171 wherein the manufacture test process includes at  
2 least one of flaw mapping, embedded runout compensation (ERC) and final drive verification.

1           173. (New) The disk drive of Claim 171 wherein the manufacture test process includes  
2 the flaw mapping.

1           174. (New) The disk drive of Claim 173 wherein the controller executes the flaw  
2 mapping on the second portion of the disk such that a first flaw mapping test is performed when

3 a user command for operating the disk drive is pending and a second flaw mapping test is  
4 performed when the computer system is idle.

1 175. (New) The disk drive of Claim 174 wherein the first flaw mapping test is performed  
2 by identifying logical block addresses (LBAs) on the disk, determining whether the identified  
3 LBAs have been processed, and if the identified LBAs have not been processed, performing a  
4 write/verify on each of the LBAs.

1 176. (New) The disk drive of Claim 174 wherein the second flaw mapping test is  
2 performed by identifying an increment of logical block addresses (LBAs) which are unprocessed,  
3 performing a write/verify on each of the LBAs in the increment, and updating which of the LBAs  
4 have been processed.

1 177. (New) The disk drive of Claim 174 wherein:  
2 the first flaw mapping test is performed by identifying logical block addresses (LBAs) on  
3 the disk, determining whether the identified LBAs have been processed, and if the identified  
4 LBAs have not been processed, performing a write/verify on each of the LBAs; and  
5 the second flaw mapping test is performed by identifying an increment of logical block  
6 addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in the  
7 increment, and indicating which of the LBAs have been processed.

1 178. (New) The disk drive of Claim 171 wherein the manufacture test process includes  
2 the ERC.

1 179. (New) The disk drive of Claim 178 wherein the controller executes the ERC by  
2 determining which cylinder was last processed, performing the ERC on the next cylinder, and  
3 indicating completion of the ERC on the next cylinder.

1 180. (New) The disk drive of Claim 171 wherein the manufacture test process includes  
2 the final drive verification.



1           181. (New) The disk drive of Claim 180 wherein the controller executes the final drive  
2 verification such that a first final drive verification test is performed when a user command for  
3 operating the disk drive is pending and a second final drive verification test when the computer  
4 system is idle.

1           182. (New) The disk drive of Claim 181 wherein the first final drive verification test is  
2 performed by identifying logical block addresses (LBAs) on the disk to which information is to  
3 be written, determining whether the identified LBAs have been processed, and if the identified  
4 LBAs have not been processed, performing a write/verify on each of the LBAs.

1           183. (New) The disk drive of Claim 181 wherein the second final drive verification test is  
2 performed by identifying an increment of logical block addresses (LBAs) which are unprocessed,  
3 performing a write/verify on each of the LBAs in the increment, and indicating which of the  
4 LBAs have been processed.

1           184. (New) The disk drive of Claim 181 wherein:  
2           the first final drive verification test is performed by identifying logical block addresses  
3 (LBAs) on the disk to which information is to be written, determining whether the identified  
4 LBAs have been processed, and if the identified LBAs have not been processed, performing a  
5 write/verify on each of the LBAs; and  
6           the second final drive verification test is performed by identifying an increment of logical  
7 block addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in  
8 the increment, and indicating which of the LBAs have been processed.

1           185. (New) The disk drive of Claim 171 wherein the controller executes the manufacture  
2 test process on the first portion of the disk such that any major flaws in the disk are detected.

1           186. (New) The disk drive of Claim 171 wherein the first portion of the disk includes a  
2 predetermined percentage of the tracks as well as every Nth of the tracks.

1           187. (New) The disk drive of Claim 171 wherein the manufacture test process is stored in  
2 a random access memory (RAM) in the disk drive.

1           188. (New) The disk drive of Claim 171 wherein the manufacture test process is stored in  
2 a read only memory (ROM) in the disk drive.

1           189. (New) The disk drive of Claim 171 wherein the manufacture test process is stored in  
2 the first portion of the disk.

1           190. (New) The disk drive of Claim 171 wherein the first portion of the disk is smaller  
2 than the second portion of the disk.